



**simoco**  
wireless solutions

# Solar 25 Simulcast over IP Solutions

## Features

- ▶ Simplified setup and synchronisation
  - ▶ Remote management
  - ▶ Low lifecycle costs



**P25 SIMULCAST**

# Solar 25

Simoco Solar 25 is the latest 'Dalman Inside' simulcast product to be developed by our specialist simulcast engineers at Dalman Labs. Leveraging over 25 years of dedicated simulcast engineering, research and development, Solar 25 now extends the benefits of Dalman's revolutionary simulcast over IP to the P25 environment.

Building on the plug and play principles of analogue simulcast solutions, Solar 25 offers enhanced resilience and full remote management of base station network interfaces in a cost effective, compact, component based P25 system.

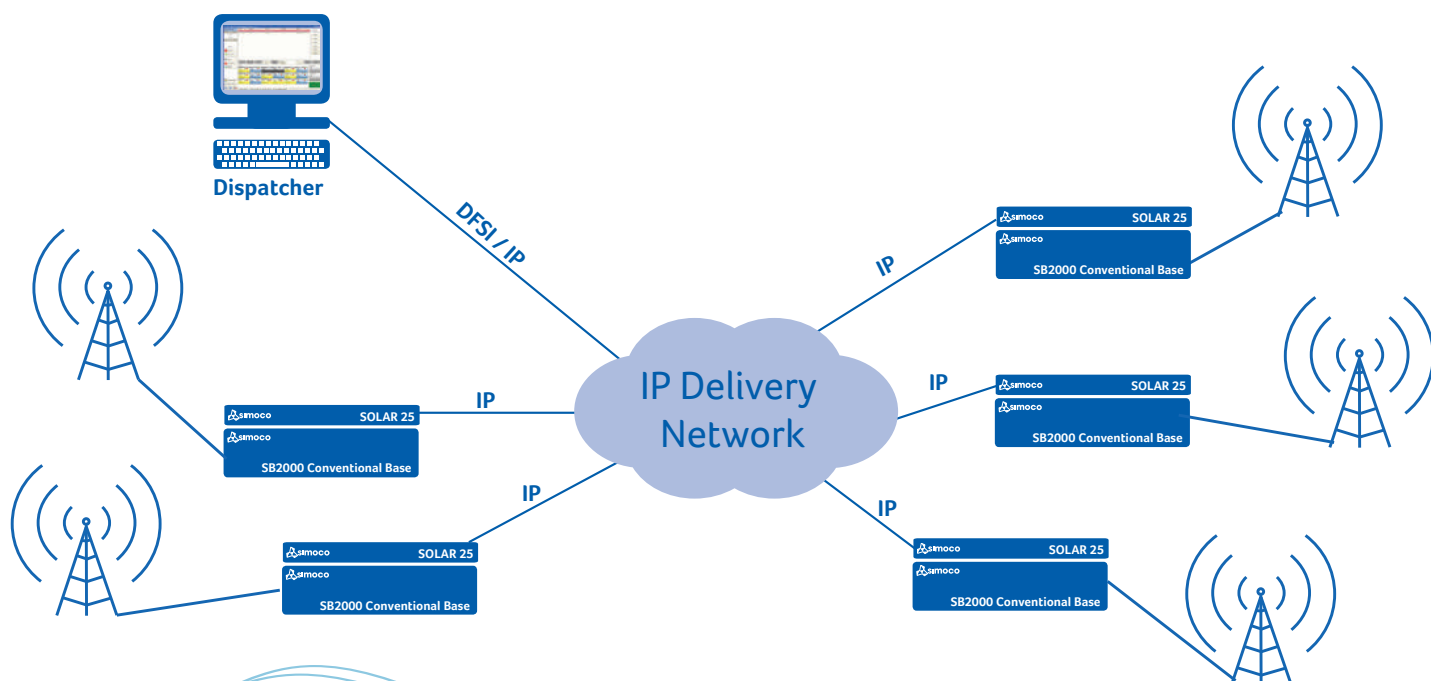
## Solar 25 Economics

Simulcast technology synchronises duplicated channels in a wide area network to avoid interference caused by overlapping radio site coverage.

As a single radio channel is reused across a system, simulcast is economical with spectrum use and an ideal solution where wide area coverage is required with low traffic requirements.

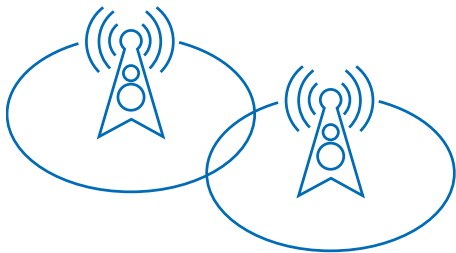
Simoco Solar technologies extend the benefits of simulcast by removing traditional barriers of cost and technology complexity for customers.

## Network Diagram



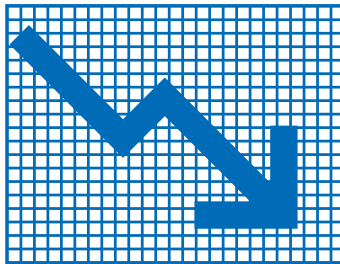
# SOLAR 25 Architecture

## Simplifying Simulcast Solutions



Simoco simulcast over IP solutions leverage the inherent consistency of digital signals to simplify simulcast synchronisation. This means that Simoco Solar 25 is fundamentally easier to manage and support and can be deployed over the enterprise IP network.

## Lowest Lifecycle Costs



Processor-controlled synchronisation, Auto Set-Up and Remote Management enable easier deployment and simplified network control. Additionally, its compact component based design offers low lifecycle costs.

## Dalman Inside



Simoco simulcast over IP solutions leverage over 25 years of dedicated simulcast engineering, research and development in Simoco Wireless Solutions Labs and are innovatively engineered to realise the advantages of digital technology in tangible business and cost benefits.

## Remote Management

Solar 25 features a traffic manager supervisory and remote management capability. The traffic manager collects alarms from SB2000 base stations and external inputs at radio sites and presents them to a remote engineering tool. Radio site equipment also features external outputs for site remote control.

Each subrack module is 1 Rack Unit high making for a compact installation.

Enhanced system resilience can be achieved by installing a backup traffic manager anywhere in the network, programmed to check and take over the function of other active traffic managers should there be an equipment outage.

## Traffic Manager Module

Traffic Manager Modules provide the synchronisation and supervisory functions throughout the network and can be duplicated to provide distributed resilience of these essential features. A TIA-102 compliant Digital Fixed Station Interface is available on the Traffic Manager for a dispatcher connection.

## Component Based Design

Solar 25 is a component based system incorporating traffic management and network interface modules. GPS synchronised timing at radio sites is provided with a Universal Reference Generator (URG) and GPS module.

## Network Interface Module

Network Interfaces provide connectivity to Simoco SB2000 base stations in station mode and connectivity to 4W dispatcher consoles in central mode. A set of digital inputs and outputs can be used for site supervisory and control.

## Integrated Voting

Radio site voting is evaluated at the traffic manager. The use of IP links between the radio sites and the traffic manager gives consistent and characterized delivery of site signal quality information ensuring an accurate vote every time.

# Specification

## Specifications

Audio I/O	DB9 Socket:	4 wire full duplex, -30 dBm to 0 dBm, 300 Hz to 3.2 kHz, +/-0.5 dB flatness across band
IP Interface:	10 Base/T RJ45 - UDP/IP	
Environment	8 Binary I/O	
GPS 1 PPS	1 PPS Delivered to Solar via RS-422 or TTL	
Temperature	Operating: -10 °C to 60 °C, Storage: -25 °C to 85 °C	
Power Supply	100-240 VAC 50-60 Hz, 10-36 VDC, 32-72 VDC	
Physical Dimensions	19" rack, 30.5 cm deep	
Weight:	TM - 3.5 Kg, NI - 3.3 Kg	
CE Mark	EN55022/24 & 61000-3-2/3	
FCC approval	15B	

## Traffic Manager Capacity

A single Solar 2 Traffic Manager(TM) can accommodate a maximum number of 32 base stations with a maximum of 16 console interface connections by default. With the additional channel option, the user can select stations to form independent channel groups (to a maximum of 16) and allocated the number of console connections to each channel as appropriate.

## Voting

Radio site voting is evaluated at the traffic manager. The use of IP links between the radio sites and the traffic manager gives consistent and characterized delivery of site signal quality information ensuring an accurate vote every time. Solar 25 can accommodate either a ramping voltage or a set of tones as a source of RSSI signal.

## Synchronisation

Synchronisation operates within 2 micro seconds compared with other base stations for both talk in and talk out directions. Switching the "vote" mid-transaction will only cause a disturbance of the input within the specified figure. Monitoring and control system configuration and status is available via a PC running the engineering terminal software supplied, and is connected either via USB or over the IP network to the TM. Standards based management is also available via the SNMP monitoring and control option to the TM allowing connection and sending of traps to a higher level management system. A closed contact summary alarm output is also provided on the central NI for connection to external alarm systems.

Specifications based on standard operating conditions. Not all combinations of frequency bands and options are permissible for every market area. See Simoco Wireless Solutions Product Catalogue for a full list of specifications. All specifications are subject to change without prior notice. Simoco Wireless Solutions does not accept liability for any error or omission in this document.

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